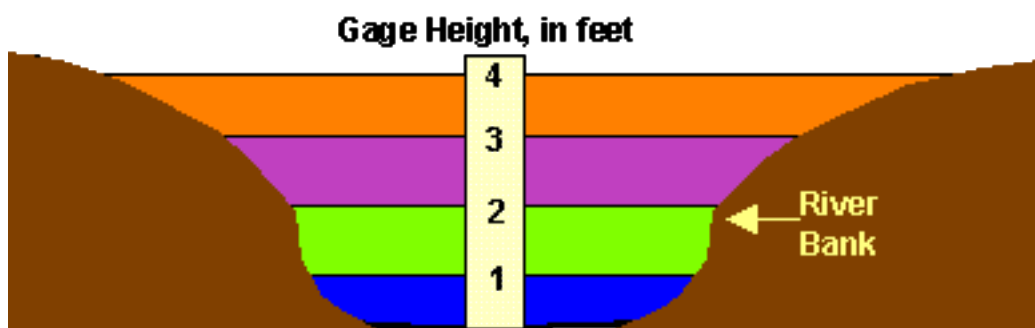


Rivers and Streams: Does "stage" tell you how much water is flowing in a stream?

Not directly. You cannot say that because a stream rises (doubles) from a 10-foot stage to a 20-foot stage that the amount of water flowing also doubles. Think of a cereal bowl with a rounded bottom. Pour one inch of milk in it. It doesn't take much milk to make it up to the one inch level because the bowl is least wide near the bottom. Now, pour in milk until it is two inches deep -- it takes a lot more milk than it did to fill the first inch because the bowl gets wider as you go up. The same thing happens in a stream -- the stream banks will generally be narrower at the bottom and tend to widen as you go up the bank. So, the amount of water flowing in a stream might double when the stage rises from 1 to 2 feet of stage, but then it might quadruple when it goes from 3 to 4 feet. This graphic helps to illustrate:



To find out how much water is flowing in a stream or river, USGS personnel have to go out and make a "discharge measurement." USGS uses the term "discharge" to refer to how much water is flowing, and discharge is usually expressed in "cubic feet per second" (think of a cube of water one foot on a side, and how many of those move past a point in one second). To do this, we often have to go out and stand in the creek, measure the depth and how fast the water is moving at many places across the creek. By doing this many, many times, and at many stream stages, over the years we can develop a relation between stream stage and discharge. Stream stages are not always cooperative, so it's not uncommon for someone to have to go measure a stream at 2:00 in the morning during a storm, sometimes in freezing conditions! Also, the stream can be uncooperative in that it changes -- a big storm may come along and sco

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